

Mange induced by *Trixacarus caviae* in a guinea pig

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Figure 1. Guinea pig skin. Several *T. caviae* mites are seen within the thickened stratum corneum. Also, note epidermal hyperplasia and dermal inflammation. Bar = 50 µm.

A mature, male guinea pig was presented to necropsy with a clinical history of intense scratching behind both ears and widespread alopecia, especially in the neck and thigh areas. The hair was easily epilated leaving a yellow scale and crust covering the skin. Microscopic changes were confined to the skin, which had a markedly hyperplastic epidermis with abundant loosely packed keratin on the surface (orthokeratotic hyperkeratosis). Numerous cross-sections of mites, up to 200 µm in diameter, were visible in the stratum corneum (Figure 1). Superficial eosinophilic microabscesses, focal areas of epidermal spongiosis, leucocytic

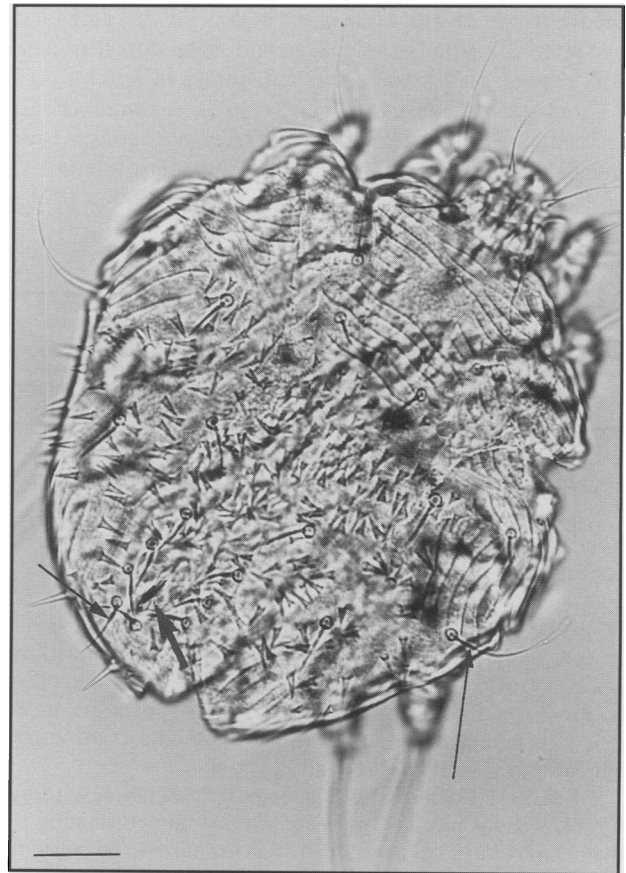


Figure 2. *Trixacarus caviae*. Note dorsal anus (thick arrow) and simple dorsal setae (thin arrow). Bar = 25 µm.

exocytosis, and small areas of necrosis were also present. The superficial dermis had diffuse edema and a perivascular to diffuse infiltrate of predominately lymphocytes and eosinophils. Mites, obtained from skin samples and cleared with a 10% solution of potassium hydroxide, were identified as being sarcoptic-like, consistent with *Trixacarus caviocoptes caviae* (Figure 2).

Mange induced by *T. caviae* has been described in caged pet and commercially reared laboratory animals and is widespread in some conventional colonies of guinea pigs (1,2). Intense pruritus and skin lesions, due to self-trauma and secondary bacterial infections, are associated with infestations (1,2). The mite may be capable of existing subclinically, becoming active with stressors, such as shipping or pregnancy (3), but the life cycle is not well known. In mature guinea pigs, pruritus and alopecia and excoriations were reported within 10 and 50 d, respectively, of cohabitation with infested

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animals. Young guinea pigs acquire the mite postnatally and may show scratching behavior as early as 72 h after birth, and erythema during the next 3 or 4 wk of life (4).

Diagnosis of mange induced by *T. caviae* and the causal mites are sometimes difficult without dissolving the affected skin in 10% potassium hydroxide. However, a negative scraping does not rule out mite infestation, if the clinical signs are consistent with the diagnosis (3). Veterinarians are usually unfamiliar with the mite *Trixacarus caviae* and may erroneously identify it as *Sarcoptes scabiei* or *Notoedres cati*. Features of differentiation (5) include size of the females (larger in *S. scabiei* than *T. caviae*), location of the anus (dorsal in male *T. caviae* and both sexes of *N. cati*, ventral in female *T. caviae* and both sexes of *S. scabiei*), and surface specialization (simple setae and sharp dorsal spines in *T. caviae*, and dorsal cones and spines in *S. scabiei*).

Cross-species infestation with *T. caviae* is controversial and remains unconfirmed (3,4). *Trixacarus caviae* is a potential public health problem with papular dermatitis

and pruritus having been reported in humans in contact with infested guinea pigs (4). However, mites have not been demonstrated in those cases, and the transient, self-limiting lesions in humans may have resulted from mechanical injury. Clinical veterinarians, pathologists, researchers, and laboratory animal personnel should be aware of *T. caviae* as a cause of alopecia, dermatitis, and pruritus in guinea pigs and, potentially, in humans.

References

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DISK REVIEW

ÉVALUATION DE PROGRAMMES INFORMATIQUES

Vet Visions Inc. *Diseases of Calves*. Vet Visions Inc, Saskatoon, 1996. PC Interactive Software. \$150.00.

This personal computer, interactive software is an excellent example of how veterinary continuing education continues to evolve. No longer are practitioners bound to only textbook reading and photographs; the opportunity now exists to take a more active role in personal continuing education via computer technology.

Diseases of Calves is 1 of 2 interactive diskettes developed by Vet Visions Inc. This offering of continuing education is likely on the first wave of further such examples. The creators have done an exemplary job in their first attempt.

The outstanding feature of this software is the approach that is used in arriving at a final diagnosis. The authors employ the problem oriented medical record (POMR) method in all of the simulations. While this approach is used in many veterinary colleges for undergraduate students, too often students (as well as veteran practitioners!) forget the value of a sound examination coupled with a problem list, leading to a list of differential diagnoses, appropriate laboratory testing, diagnosis, and treatment plans. Not to be forgotten are the final steps of disease prevention and examination of the herd. All of these areas are beautifully covered in each simulation. Avoiding "pattern recognition" and "making drive-by diagnoses" is a cornerstone of this teaching instrument.

The software presented is very easy to install and has minimal hardware requirements. A video card is a must to view the graphic portions of the program. Computer neophytes will have an easy time getting onto the simulations, as they can be keyboard or mouse driven. The copy that was reviewed did have a fault when using the mouse, as the simulation would terminate. This problem may have been unique to this particular diskette.

Six different simulations are offered. Simulations can be run at the novice or expert level. The programs are well laid out and easy to follow. Users have the option of recording their performance via a scoring system. The scoring system is set up to reward a logical thought process. Points are given to making solid, clinical decisions, based on good history taking and physical examination techniques. Additional points are given for shrewd use of laboratory testing and interpretation of test results. At the end of a simulation, the user's score is compared with that of an expert clinician. Further information about the case presented, as well as a summary, is offered at the end. Two of the simulations include keeping track of costs related to diagnosis and treatment. This helps the user to keep in mind economic considerations when diagnosing and treating food producing animals. Some of the costs included in the simulations are likely considerably lower than those encountered in private practice.

Each simulation takes 15 to 20 minutes to complete. The 6 simulations cover prominent diseases seen in calves in Western Canada; this does not limit the usefulness of the diskettes, as all conditions occur globally.

Overall this interactive software is very user friendly and a pleasure to work through. The graphics included are of good quality. They enhance the attractiveness of working through the simulations. User interest is maintained throughout. Each simulation costs about \$25.00 Cdn (\$150.00/diskette). This is very reasonable, knowing the cost of generating this type of continuing education material. The simulations are fantastic for undergraduate teaching, as well as for serving as an excellent refresher for the experienced practitioner.

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